

REMARKS

Applicants will address each of the Examiner's objections and rejections in the order in which they appear in the Office Action.

Claim Objections

In the Office Action, the Examiner objects to Claim 6 for informalities and particularly, objects to the phrase "irradiation of the plasma."

In order to overcome this objection, Applicants have amended Claim 6 to recite "irradiation with the plasma," as the Examiner suggests. It is respectfully submitted that this overcomes the Examiner's objection, and it is requested that the objection be withdrawn.

Claim Rejections - 35 USC §103

Seki in view of Lewis

The Examiner rejects Claims 1, 3-4, and 6-7 under 35 USC §103(a) as being unpatentable over Seki et al. (EP 0989778) in view of Lewis et al. (US 5,272,979). This rejection is respectfully traversed.

Initially, Applicants note that independent Claim 1 has been amended to clarify the claimed invention. In particular, Applicants have amended Claim 1 to recite "a liquid-repellent thin film to a liquid composition" and "a liquid affinity to the liquid composition" to clarify an object of liquid-repellency and liquid affinity. As amended, Claim 1 clearly claims that a selected portion of the liquid repellent thin film has a liquid affinity to the liquid composition by being irradiated with plasma from a first nozzle. Then, the liquid composition is applied to the selected portion having the

liquid affinity to the liquid composition. As a result, in the present invention, a liquid affinity region and a liquid-repellent region are formed on the thin film without forming other elements such as a bank.

In contrast, Seki appears to disclose that bank is formed over the substrate, and then, the substrate is irradiated with oxygen plasma to raise liquid affinity. Then, the bank is irradiated with fluorine based plasma to raise liquid repellency. This is clearly different than the claimed invention.

Additionally, the Examiner contends that “[i]t would have been obvious to one of ordinary skilled in the art that as Seki et al. is providing teachings concerning plasma is that selectively affect the surface affinity to subsequent coating, but do not discuss particular plasma details, to the two prior art plasma techniques that create like differential affinity treatments, where the process of Lewis et al. provide such techniques which would have been expected to be equivalently effective in the process of Seki et al., as Lewis et al. demonstrates their techniques effectiveness for multiple different coatings inclusive..., thus showing the expected general of effectiveness of such affinity treatments via plasma from a nozzle.” Applicants respectfully disagree and submit that the combination of references to arrive at the claimed invention is improper.

Seki describes “a series of surface modification treatments refers to a process, described below, for, most suitably, applying plasma treatments, described below, all at one time to a substrate wherein banks made of an organic material are formed on bank forming surfaces configured by an inorganic material ” (emphasis added) in [0041]. It appears that there is no need to perform the plasma treatments allegedly disclosed in Lewis to Seki since an inorganic surface to be treated by plasma has banks made of an organic material which are subsequently made to be non-affinity toward fluids containing polar molecules.

KSR v. Teleflex (US 4-30-2007) states that it is important “to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” Slip opinion at page 15. Applicants submit that there is no reason that would prompt one skilled in the art to combine Seki and Lewis to arrive at the claimed invention.

Therefore, the rejection is improper.

Hence, Seki and Lewis do not disclose or suggest the method of independent Claim 1, the combination of references is improper and Claim 1 and those claims dependent thereon are patentable over the cited references.

Accordingly, it is respectfully requested that this rejection be withdrawn.

Seki in view of Lewis and further in view of Di Dio

The Examiner also rejects Claims 2, 5, and 16-18 under 35 USC §103(a) as being unpatentable over Seki et al. in view of Lewis et al. and further in view of Di Dio (US 2004/0152329). This rejection is also respectfully traversed.

Applicants have amended independent Claim 2 for clarification purposes, in a similar manner as Claim 1 discussed above. Hence, for at least the reasons discussed above, Claim 2 is patentable over Seki and Lewis. Further, even if Di Dio is combined to Seki and Lewis, the claimed steps of “selectively forming a groove or a hole in a surface of the thin film having an affinity for a liquid composition” and “forming a pattern by applying a drop comprising the liquid composition to the groove or the hole” are still not obtained.

Therefore, even if it were proper to combine the references (which it is not), none of the cited references or combination thereof disclose or suggest the method of independent Claim 2, and Claim

2 and those claims dependent thereon are patentable over the cited references.

Accordingly, it is respectfully requested that this rejection be withdrawn.

Yoshikawa in view of Lewis

The Examiner also rejects Claims 1-4, 6-7, and 14-16 under 35 USC §103(a) as being unpatentable over Yoshikawa et al. (US 6,228,435) in view of Lewis et al. This rejection is also respectfully traversed.

In particular, the examiner alleges that it “would have been obvious to one of ordinary skill in the art to employ a plasma apparatus such as taught by Lewis et al. (979) which teaches the capability of direct writing type plasma treatment for affinity providing the advantageous capability of more precise patterning due to the selective nature of the direct write technique, thus motivating employed such an alternative with improved resolution or versatility in patterning is desired.”

However, Yoshikawa describes that “oxygen gas is introduced into the vacuum container to produce oxygen plasma, to which the surface of the light-transmitting base, wherein the light-shielding portions have been formed between the pixels patterned in advance, is then exposed...” (col. 5, lines 33-37). Hence, it appears that there is no reason or need to perform the plasma treatments from Lewis as the thin metal portions in Yoshikawa retain good water repellency while exposed glass portions become hydrophilic.

Therefore, the combination of references is improper and it is respectfully requested that this rejection be withdrawn.

Double Patenting

The Examiner also has the following rejections for double patenting:

- A. Claims 1-7, 16-18 and 23- 30 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-10 of U.S. 7,226,819 (Maekawa et al.) in view of Lewis et al. '979.
 - B. Claims 1-6, 16-18 and 23-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting over Claims 1-35 or 1-22, 28-37, 44-47 of copending Application Nos. 10/575,492, or 11/025,192, respectively in view of Lewis '979.
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These rejections are respectfully traversed.

While Applicants traverse these rejections, it is respectfully requested that these rejections be held in abeyance until the prior art rejections are overcome and the claims are in their final form.

Conclusion

It is respectfully submitted that the present application is in a condition for allowance and should be allowed.

If any fee should be due for this amendment, please charge our deposit account 50/1039.

Favorable reconsideration is earnestly solicited.

Respectfully submitted,

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/Mark J. Murphy/
Mark J. Murphy
Registration No. 34,225

COOK, ALEX, McFARRON, MANZO,
CUMMINGS & MEHLER, LTD.
200 West Adams Street, Suite 2850
Chicago, Illinois 60606
(312) 236-8500
Customer No. 26568